



Research and Scholarly Activity Fund Award Final Report

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The purpose of my research project is to exam the coastal geology of Vancouver Island between the towns of Tofino and Ucluelet. The main focus are the landforms found in and around the beaches and the processes that affect them.

Recent financial support from Langara College was intended to help access to coastal settings by providing the means to purchase a bottom sampling dredge and material for groundwater observation wells. Preliminary results from the use of this equipment reveal diverse sediment bottom in and around the Tofino Harbour area tidal flats and a dynamic groundwater system beneath the beaches on the exposed outer coast.

Information is limited as to the nature and importance of bottom samples in these tidal flats. Access to sampling sites was significantly curtailed over the past year because of road closures related to construction in Pacific Rim National Park Reserve. However, based on a review of the literature and the limited number of samples that were collected, there is a need for more sample collection and analysis plus a number of processes that require more study. For example, the timing and strength of tidal currents through tidal cycles and their impact on sediment distribution need to be determined.

As for the outer coast beaches, early examination of sand moisture content, the position of the water table at various locations and times within the beach and variations of beach surface colour suggest a possible method to measure surface moisture content based on the analysis of colour spectrum in digital photographs. In this way it may be possible to quickly and easily determine the relative importance of groundwater on the mobility of sand and its impact on the formation and sustainability of coastal sand dunes. To confirm the relationship between beach sediment texture, colour and moisture content, and the impact of tides, waves, and, most importantly, weather at the beach surface a more thorough repeat of early observations is necessary.

In moving forward this project will continue with a regional survey of coastal processes and features in the Tofino – Ucluelet area, with more detailed studies of specific areas and processes to address particular questions. In addition, the plan is to expand the study area to include the

beaches of Spanish Banks and Kitsilano in the City of Vancouver. The same concerns about the nature of beach processes and their long term sustainability apply equally to these urban locations. The close proximity of these sites will also make for much easier access and the opportunity to include Langara students through class field trips.

In conclusion, the study of beach processes is moving forward, albeit not as far and as fast as hoped. However, progress is being made and a new study area is being developed. The funding provided by Langara College has been instrumental in moving forward and will continue to be so. For this I express my thanks. Please contact me if you have any questions or comments.

Respectfully submitted,

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